USER MANUAL

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Control Unit

CLT-2000NW / CLT-2000NW-5

Work place control for electric screwdriver

HS-Technik GmbH
High - System - Technik

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1. Grundlegende Hinweise

1.1. Rating of this manual

This information has been written to be read, understood and to be taken into consideration from those people who are responsible for this control unit.
Errors on the workplace can only be avoided and the operation without any disturbances can only be reached with knowledge of this instruction manual.
Please note that we do not overtake any responsibility for damages or disturbances which result out of non-observance of the instruction manual.
In the case of any difficulties in spite of consideration of the tips of the instruction manual, please contact us, we should be glad to be at your disposal for any further information you might require.

1.2. Using according to this manual

! This device is exclusively meant for the control of HIOS screwdrivers CL and α-Series and HST-A- and HST-CL-screwdrivers from the HS-Technik-GmbH.

The use for any other devices is regarded as non-directed; that means that the company HS-Technik GmbH does not overtake any responsibility for any damages resulting out of such an improper use.

! The proper use of the device includes also
• the consideration of the directions in this manual
• the observance of inspection and maintenance service

1.2.1. Improper use

We do not overtake any responsibility for damages caused by an improper use of this control unit or the non observance of this instruction manual.

1.3. Warranty and libility

Warranty and liability claims – with personal injury and material damage – are impossible, in one or more of the following cases:

- improper use of the control unit
- improper mounting, operation and maintenance of the control unit
- operation of the device with damaged safety devices or safety devices which are not installed properly or safety devices which are out of order
- non observance of the directions of the instruction manual regarding transport, stocking, mounting, operation and maintenance of the control unit
- unauthorized conversion of the control unit
- improper reparations

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Copyright
This manual is only meant for the operator and its staff.

It contains the directions which you are not allowed to
- copy,
- distribute or
- inform about in any other way.

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Address of the manufacturer:

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2. Principle safety instruction

2.1. Consideration of the directions of this manual

- Basic requirement for a safe and disturbance free operation of the device is the knowledge of the principle safety rules.
- Moreover, the rules and directions for the workplace have to be taken into consideration.

2.2. Operator's duty

It is the duty of the operator to ensure that only people who are familiar with the principle directions of work safety and accident prevention and who are trained in the correct handling of the workplace have access to the device. The personnel will be tested regularly if they work according to the safety instructions.

2.2.1. Staff's duty

All persons who are entrusted to work with the control unit have the duty to inform themselves about the principle directions of work safety and accident prevention before they start working.

2.2.2. Training of staff

Only trained personnel are allowed to work at this working environment.
The responsibility for mounting, operation, maintenance and repair has to be fixed clearly.
The training of new staff has to be done under supervision of an experienced person.

2.3. Perils in view of working with the control unit CLT-2000NW / CLT-2000NW-5

Disturbances, which have an adverse affect on the safety, have to be eliminated promptly.

The control unit CLT-2000NW / NW5 has been built according to state of the art and the approved safety rules.
In spite of this fact, however, there can occur situations which build perils for life and limb of the user or third or which could lead to material damage.

! The work place is only meant:
- for a proper use
- in an impeccable state

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2.4. Perils caused by an electric shock

Work on the electrical connection and the power supply should only be done by an electrician.
The electrical equipment of the control unit has to be checked regularly.
Remove loose connections and "roasted" cables immediately.
If it is necessary to work on the control unit, the power plug has to be removed out of the socket before opening it.

The control unit has to be kept close constantly.
Only authorized personnel with proper tools should have access to the device.

2.5. Alterations of the control unit

Do not carry out any changes, conversions or extensions on the control unit without authorization of the manufacturer.
All reconstructions had to be authorized in writing through HS-Technik GmbH.
Parts which are not in an impeccable state have to be changed immediately but only with original spare parts.

! Use only original spare parts.

2.6. Cleaning an waste disposal of the control unit

Used materials have to be handled and disposed properly, especially in view of the cleaning with solvents.

2.7. Installation

The control unit CLT-2000NW / NW-5 is only meant for the operation in dry rooms. The device should be installed far from heating and sun light, as a high temperature of the environment could lead
to disturbances.

2.8. Power supply

The CLT-2000NW / NW-5 is ready for use after you have plugged in the power connector and actuated the power switch on the back of the device.
Now the display should show the type of device.

! Please consider the directions regarding voltage, frequency and current on the type plate before connecting the control unit with the power supply.

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3. Operation of the control unit CLT-2000NW / CLT-2000NW-5

3.1. Basic concepts

3.1.1. Key switch

If the key switch is in vertical position, the CLT-2000NW/CLT-2000NW5 is in the operation mode.
In this mode the screwdriver can be used.

If the key switch is in horizontal position, the CLT-2000NW/NW5 is in the program choose mode.
With the two arrows ▼▲, the desired program can be chosen.
In this mode the operation of the screwdriver is not possible.
The current program and its parameters are shown on the display.

3.1.2. Programmtasten

With the two program choose arrows▼▲, the desired program can be chosen
(but only if the key switch is in horizontal position).
The chosen program is immediately at your disposal.

3.1.3. Programms (installation of the manufacturer)

The current program number is shown in the right corner of the display.
The display of the program parameter belonging to it follow consecutively.
You can choose between the following programs:

- 25 normal programs (on the places 1-25)
- 10 special programs (on the places 26-35)

3.1.4. LED

Power: Lightening green, if the device is switched on.

NG: Lightening red, if the tightening is no good.

Ready: Lightening green, if the device is ready.

Torque Stop: Lightening yellow, if the tightening is OK.

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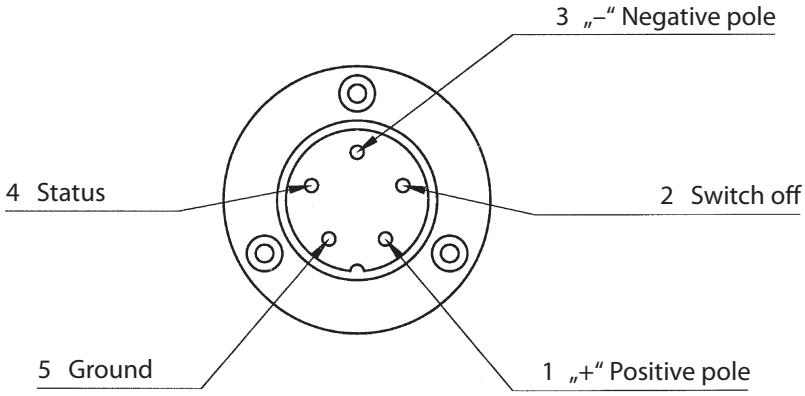
3.1.5. Output jack

The output jack is meant for the connection with the electro-screw cable.
A description of the pins can be found below the jack.

Seizure of output



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CLT-2000NW
Front

screw mode

Program selection mode

Program choice button

CLT-2000NW-5
Back

screw mode

Program selection mode

Program choice button

! While the CLT-2000NW / CLT-2000NW-5 is in the programming mode, it is not possible to tighten.

ATTENTION
You can pull out the key in both positions.

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3.2. PC-Software CLT-2000NW / CLT-2000NW-5

3.2.1. Setup

Setup.exe will be startet with the program.
Put the CD in the CD-ROM drive and start it with a double-click on <CD-ROM>:\Setup.exe,
how <CD-ROM> shall be the letter of your CD-ROM drive.
Follow the instructions on the screen.
Start the program after the installation with a double-click on the desktop icon.

Installation conditions

> **!** Supported operating system:
> Windows 98/98SE/NT4.0 ab SP5/ME/2000/XP

Setup under Windows 9x/NT4.0
Step 1:
Make sure, that the Internet Explorer 5.0 or higher ist installed on your PC.
If the Internet Explorer 5.0 or higher is installed look at Step 2.

> **!** For user from NT4.0:
> If on your Computer is not installed Service Pack 5 at least, install the Service Pack 5 for NT4.0 provided on the CD!
> Go to the folder <CDROM-Laufwerk>:\NT4 and start the file „NT4SP5_i386.exe".

To establish the version of the Internet Explorer, start the Internet Explorer on your desktop.
If there is no shortcut on the desktop, start the file „IEXPLORE.EXE" in the folder
C:\Programme\Internet Explorer.
After starting go to the menu „?" and klick on „Info", as shown on the next page.

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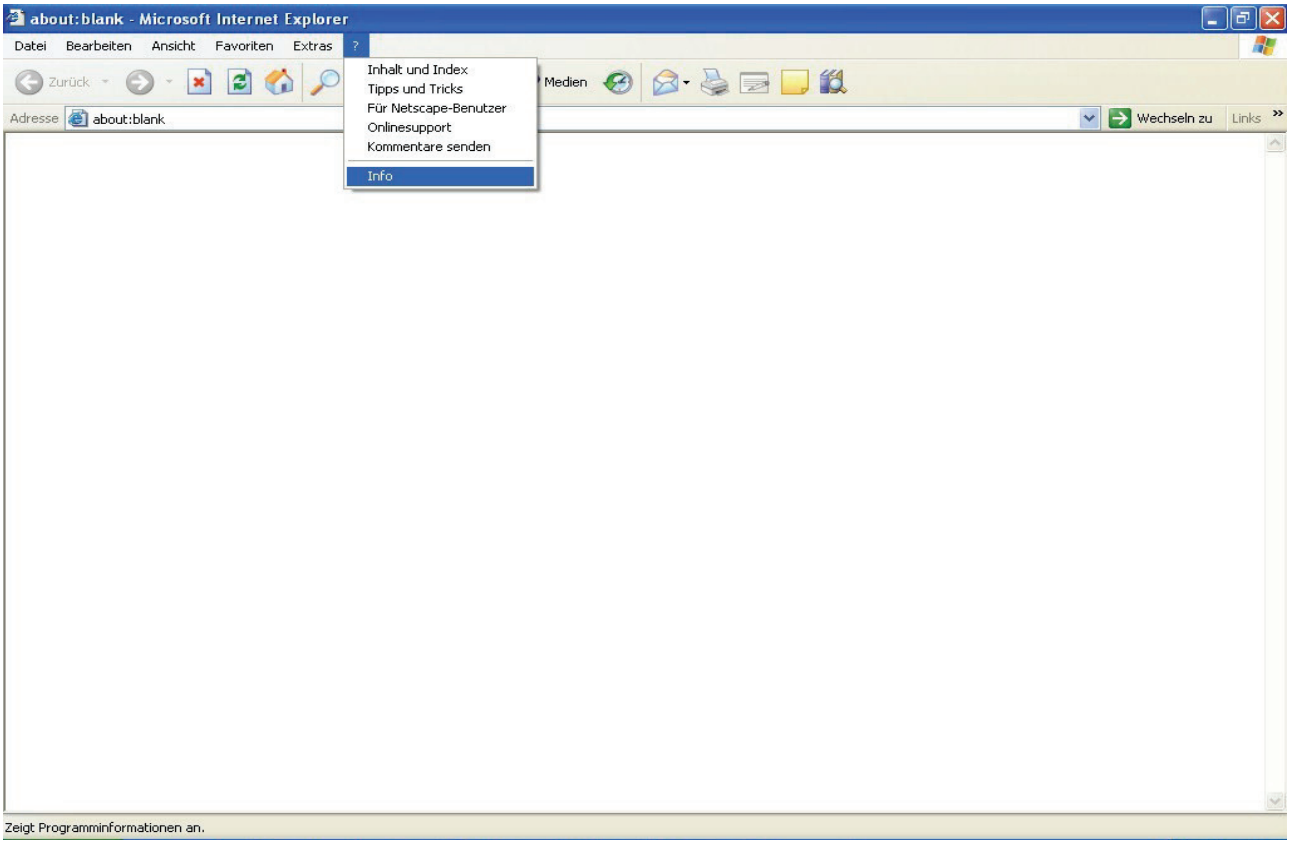

Following window will be opening:

Behind the entry version the versionsnumber of the installed program is given.
Is the version numer not at least beginning with a 5 you have to install the Internet Explorer from the CD which is included.
Go to the folder <CDROM-Laufwerk>:\IE5 and start the file „ie5setup.exe".
If the is an error with NT4.0 start the file „vbrun60sp6.exe" in the folder <CDROM-Laufwerk>:\NT4 from the CD and try the installation of the Internet Explorer again.

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Step 2:
Install DCOM98.
Go to the folder <CDROM-Laufwerk>:\DCOM98 and start the file „DCOM98.EXE“.

Step 3:
Install MDAC 2.5.
Go to the folder <CDROM-Laufwerk>:\MDAC and start the file „mdac_typ.exe“.

Step 4:
Install the CLT-Programm.
Go to the equivalent folder and start the file „setup.exe“.

Setup under Windows ME/2000/XP
Install the CLT-Programm.
Go to the equivalent folder and start the file „setup.exe“.

3.2.2. Installation USB Driver

To make sure that all device driver can be coose you have to install the program CP2101_Drivers.exe

Installation under Windows 2000
Step 1:
Connect the USB cable between the host computer and the control unit.

Step 2:
Windows will open a „Found New Hardware Wizard“ window. Press NEXT to continue.

Step 3:
Select „Search for a suitable driver for my device (recommended)“ and press NEXT.

Step 4:
Check „Specify a location“ an press NEXT.

Step 5:
Press BROWSE to locate the „slabbus.inf“ driver install file. The default location is the „C:\SiLabs\MCU\CP2101\WIN“ dirctory. Once this file is selected press OK.

Step 6:
Verify that the correct path and filename are shown and press NEXT.

Step 7:
Press FINISH ti finish installing the „CP2101 USB Composite Device“.

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Step 8:
Windows will open a second „Found New Hardware Wizard".
Press NEXT to continue.

Step 9:
Select „Search for a suitable driver for my device (recommended)" and press NEXT.

Step 10:
Check „Specify a location" and press NEXT.

Step 11:
Press BROWSE to locate the „slabw2k.inf" driver installation file. The default location is the „C:\SiLabs\MCU\CP2101\WIN" directory. Once this file is selected press OK.

Step 12:
Verify that the correct path and filename are shown and press NEXT.

Step 13:
Press FINISH to finish installing the „CP2101 USB to UART Bridge Controller".

Installation under Windows XP
Step 1:
Connect the USB cable between the host computer and the control unit.

Step 2:
Windows will open a „Found New Hardware Wizard" window.

Step 3:
Select „Install from a list or specific location (advanced)" and press NEXT.

Step 4:
Select „Include this location in the search".

Step 5:
Press BROWSE to locate the „C:\SiLabs\MCU\CP2101\WIN" directory.
Once this directory is selected press OK.

Step 6:
Verify that the correct path and filename are shown and press NEXT.

Step 7:
Press FINISH to finish installing the „CP2101 USB Composite Device".

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Step 8:
Windows will open a second „Found New Hardware Wizard“ window.

Step 9:
Select „Install from a list or specific location (advanced)“ and press NEXT.

Step 10:
Select „Include this location in the search“.

Step 11:
Press BROWSE to locate the „C:\SiLabs\MCU\CP2101\WIN“ directory.
Once this directory is selected press OK.

Step 12:
Verify that the correct path and filename are shown and press NEXT.

Step 13:
Press FINISH to finish installing the „CP2101 USB to UART Bridge Controller“.

Installation under Windows 98SE
Step 1:
Connect the USB cable between the host computer and the control unit.

Step 2:
Windows will open a „Found New Hardware Wizard“ window.

Step 3:
Select „Search for the best driver for your device (recommended)“ und press NEXT.

Step 4:
Select „Specify a location“.

Step 5:
Press BROWSE to locate the „C:\SiLabs\MCU\CP2101\WIN“ directory.
Once this directory is selected press OK.

Step 6:
Verify that the correct path and filename are shown and press NEXT.

Step 7:
Select FINISH to finish installing the „CP2101 USB Composite Device“.

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Step 8:
Windows will open a second „Found New Hardware Wizard“ window.
Press NEXT to continue.

Step 9:
Select „Search for the best driver for your device (recommended)“ and press NEXT.

Step 10:
Select „Specify a location“.

Step 11:
Press BROWSE to locate the „C:\SiLabs\MCU\CP2101\WIN“ directory.
Once this directory is selected press OK.

Step 12:
Verify that the correct path and filename are shown and press NEXT.

Step 13:
Press FINISH to finish installing the „CP2101 USB to UART Bridge Controller“.

3.2.3. Login

The administrator has unlimited access to all parts of the program of the CLT.

> **!** The administrator has to install the users.

The user can change all programs and parameters.
The access to the functions „entire sending“, „setup“ and „display“ is denied.
These functions are restricted to the administrator.

From the manufacturing works the below mentioned passwords are deposited:

User	Password
Administrator	admin
User	user

> **!** These two passwords can only be changed by the administrator.

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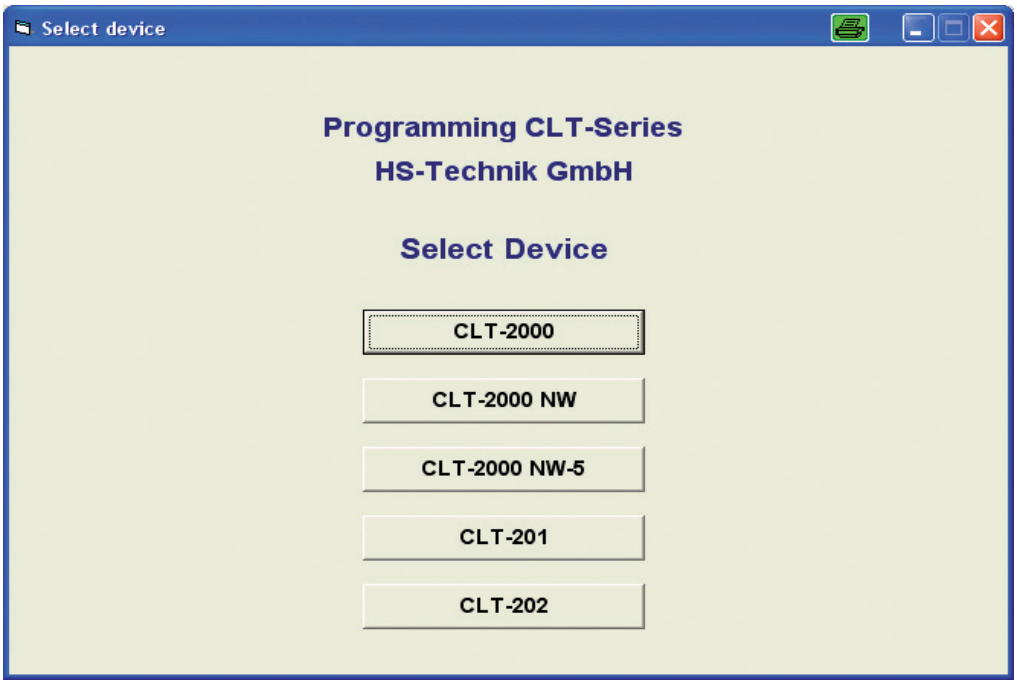
3.3. Selection of device

The device which will be used with the interface RS 232 has to be chosen here by clicking on the name – for example CLT-2000NW/NW5 or CLT-201 or CLT-202.



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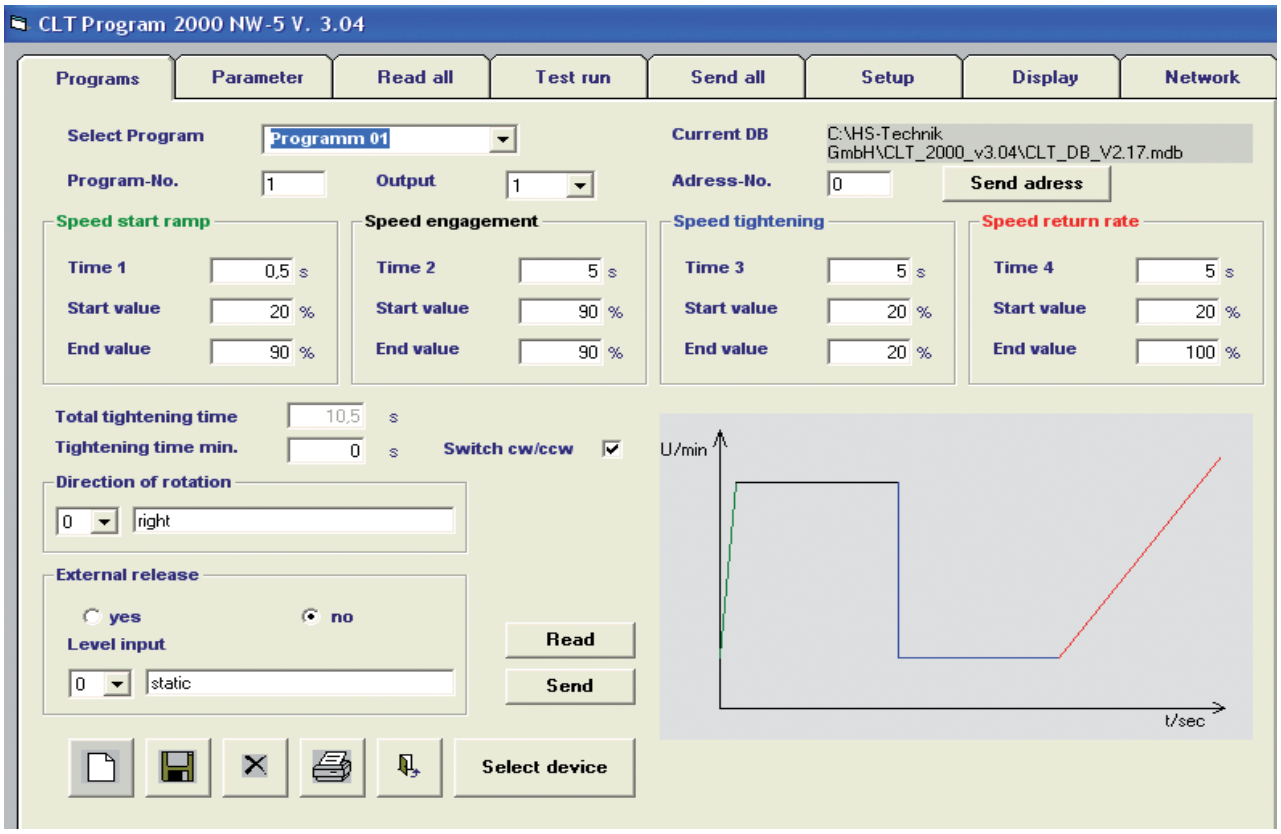
3.4. Programs



„Switch cw/ccw“
activate moving backwards if time 1 / time 2 and time 3 have gone on or the screwdriver switchs off through the torque.

„Total tightening time“
The total tightening time is generated of time 1 / time 2 and time 3.

„Direction of rotation“
CW = tighten a screw
CCW = unscrew a screw,
or tighten left-hand thread screws.

0 CW
1 CCW
2 Search-run CCW then tighten CW
3 Search-run CW then tighten CCW

The „screw tightening time min.“ is composed of time 1 and time 2.
This value should be corrected into a advisable time.

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„External release“
Choose only if port 2, pin 9 is connected or if the key switch to reset is available
(look at pinning port 1 and port 2)

CAUTION!
You can adjust the initial level by yourself:

0 = statically - 0V or +24V
1 = negative flank - change from +24V to 0V
2 = positive flank - change from 0V to+24V

Funktion only at change of the stress laid out.

4 = static with supervision
5 = negative flank with supervision
6 = positive flank with static supervision

If the input signal changes during the tightening process will be actuated NG if NG Quit is activated.

With the key switch you can reset „External release“.

„Send adress“
Set the device address in the network area 0 till 250
0 = no network funktion

„Save“
If you click on the 2. symbol (diskette), you save the adjusted values .

„Send“
Preparation to „send“:
On the backside of CLT-2000NW / CLT-2000NW-5 between port 1 and RS232
there is a small switch (lay lower). Move this switch upwards.
In the display on the frontside should appear this:

CLT-2000NW / CLT-2000NW-5
STOP ! ! !

Now the CLT-2000NW / CLT-2000NW-5 is recipient.

„Output“ (exists at NW5 only)
The classification of the output to the program-no.

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3.4.1. Control unit CLT-2000NW / CLT-2000NW-5

First enter in the rubric „Select program“ a program name,
e.g. Muster 01.

> **!** The OUTPUT (screwdriver 1 till 5) have to be named for each program by CLT-2000NW-5.

Speed start ramp	value	min.	max.
TIME 1	0,2 – 1,5 sec.	0,025s	25s
START VALUE	20% – 70%	10%	100%
FINAL VALUE	70% – 100%	10%	100%

Key in suitable values depending on the length of the screws.

Speed engagement	value	min.	max.
TIME 2	0,2 – 1,5 sec.	0,025s	25s
START VALUE	70% – 100%	10%	100%
FINAL VALUE	70% – 100%	10%	100%

START VALUE and FINAL VALUE should always be the same with „Speed engagement“.

Speed tightening	value	min.	max.
TIME 3	0,1 – 5 sec.	0,025s	25s
START VALUE	25% – 40%	10%	100%
FINAL VALUE	25% – 40%	10%	100%

START VALUE and FINAL VALUE should always be the same with „Speed tightening“.

Speed return rate	value	min.	max.
TIME 4	0,2 – 1,5 sec.	0,025s	25s
START VALUE	20% – 70%	10%	100%
FINAL VALUE	70% – 100%	10%	100%

> **!** The TOTAL TIGHTENING TIME is calculated. This value cannot be changed and is composed of the times 1,2,3 and 4. If one of these times is changed – automatically the total tightening time is calculated new.

The „tightening time min.“ is calculated of TIME 1 and TIME 2.
This value can be changed individually but it have to be less than the total tightening time.

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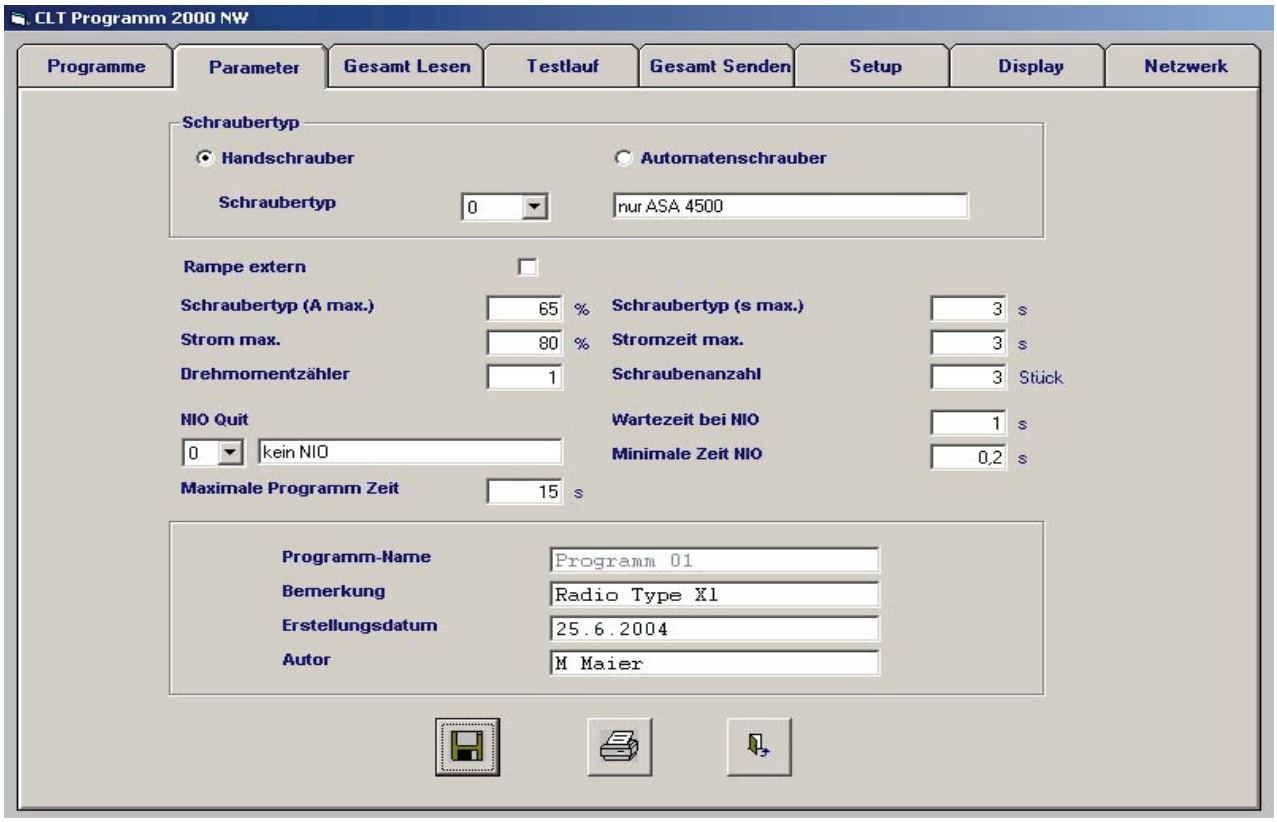
3.4.2. Parameters



„Type of screwdriver“
Choose handset or machine screwdriver, look at pinning port 1 and port 2.

Handset screwdriver	Valid adjustment for screwdrivers with lever start
Machine screwdriver	Start tighten function over port 1 and port 2

„External ramp“ (only in connection with machine screwdriver)
Look at pinning port 1 and port 2.

! Select only if port 1, pin 10 is connected.

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„Screwdriver type (A max.)“

we recommend to enter following values:

Screwdriver type	A max.	s max.
CL-2000	30%	2
CL-3000	40%	3
CL-4000	40%	3
CL-6500	70%	3
CL-7000	80%	3
CL-9000	100%	3
Alpha-4500	70%	3
Alpha-5000	80%	3
Alpha-6500	90%	3
Alpha-6500 HT	100%	3
HST-A-xx	100%	3
HST-CL-xx	70%	3

Current time value max.	Time to release (s)
Current time value typ.	Time to release (s)

“Current time value max.”
These values should always be smaller than the value of the screwdriver type.

“Tightness counter”
With normal use it should always be 1.
In the automation mode the torque can be revised e.g. 2 or 3 times on the same screw connection.
Through this simple action, the process safety will be increased.
So the reasonable entry would be 2 or at the maximum 3.
No torque supervision is carried out in the setting Ø (Zero).
(The screwdriver is working though the mechanical coupler is operating.)

“Screws counter“
Here you can key in the number of the screws of the tool.
However, only OK tighten connections will be counted. (max. 250)

To use this function, Pin 11, 12, 24 or 25 should be wired at port 2.

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"NIO Quit"
If NIO Quit is in operation pin 11 and pin 22 should be wired at port 1.
It is possible to delete the NG-signal tough an external switch.
Program time max. = 0 till 300 sec
Einstellung Ø = OFF
If the entered time is up the installation will be starting up automatically.

"Waiting time at NIO"
Reasonable entry: 1 till 300 sec
By an entry of 300 sec the time does not expire anymore.
The NG-signal have to be resetted externally.

"Min. time NIO"
During this time there is no error check procedure (NG-interpretation),
e.g. short start up to carry the screws.
Reasonable entry: 0,1 sec till max. 0,35 sec.

"Program time max."
Here you can specify the time which is max. needed to tighten alle screws in the workpiece.
Please note that you consider the assembly time.
If the screwdriver is starting up the first time, the time begins to run.

"Program text"

Program name	the choosen programm
Remark	this text will be shown in line 2 on the CLT-2000NW display
Date of setting up and author	free lettered; will be saved in the device

"Save"
If you click on the second symbol on the bottom (diskette) the entered values will be saved.

"Send"
Preparation to "Send":
On the backside of CLT-2000NW / CLT-2000NW-5 between port 1 and RS232
there is a small switch (lay lower). Move this switch upwards.
In the display on the frontside should appear this:

CLT-2000NW / CLT-2000NW-5
STOP ! ! !

Now the CLT-2000NW / CLT-2000NW-5 is recipient.

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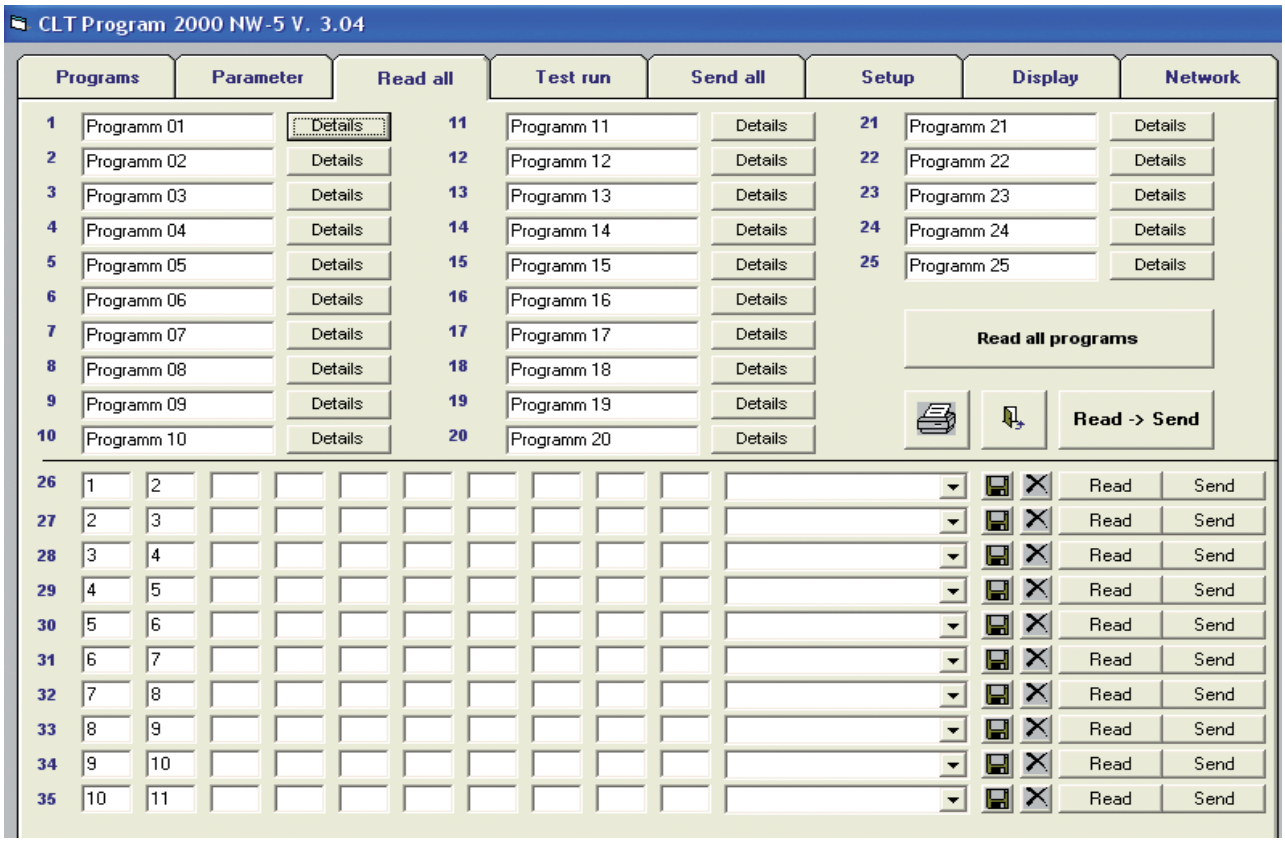
3.4.3. Completely reading-out all programs – Read and Send



"Read all" or "Send"
Preparation to "Read" oder "Send":
On the backside of CLT-2000NW / CLT-2000NW-5 between port 1 and RS232 there is a small switch (lay lower). Move this switch upwards.
In the display on the frontside should appear this:

CLT-2000NW / CLT-2000NW-5
STOP ! ! !

Now the CLT-2000NW / CLT-2000NW-5 is recipient.

! Move the small switch down after programming!

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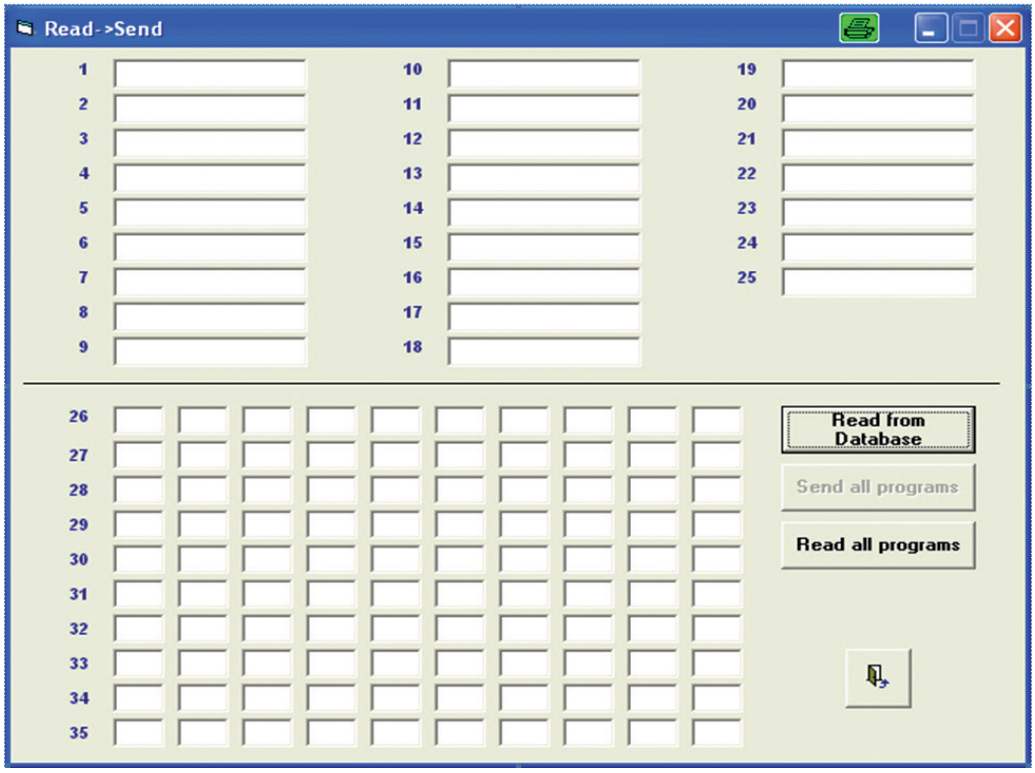
“Read“ -> “Send“
“Read all programs“
All programm will be read back.

“Send all programs“
You copy the program back to the device or
you can copy the programs to an other device.

“Read from database“
The programs you recently read from the device are restored from the database.



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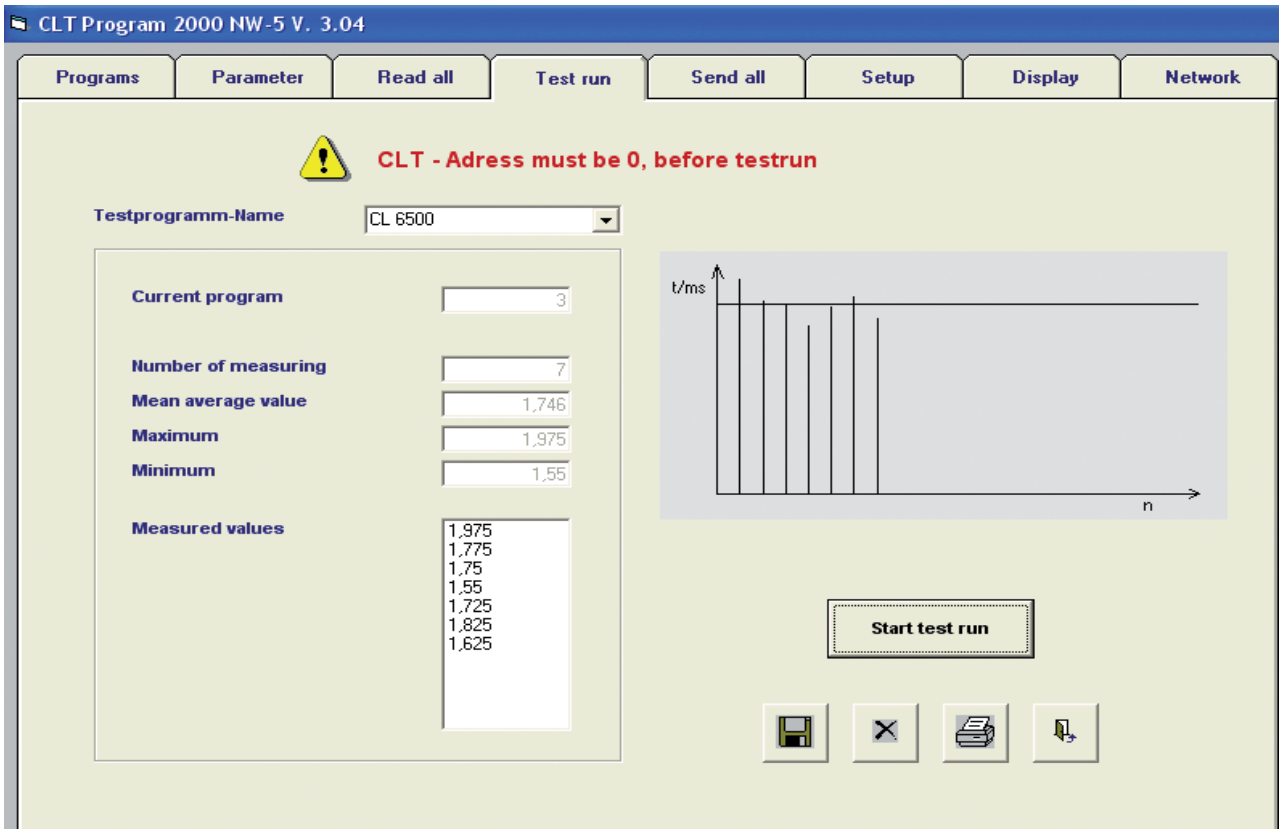
3.4.4. Test run



! Before you start the Test Run, you must set the Network address to 0.
You have to give the file a unique name.

"Start test run"
Activates the test run. You can start with the tighening test.

"Stop"
End of the test run.
On the left side there are the established values numerical and
on the right side they are shown graphical.

"Save"
If you click on the second symbol on the bottom (diskette)
the established values will be saved.

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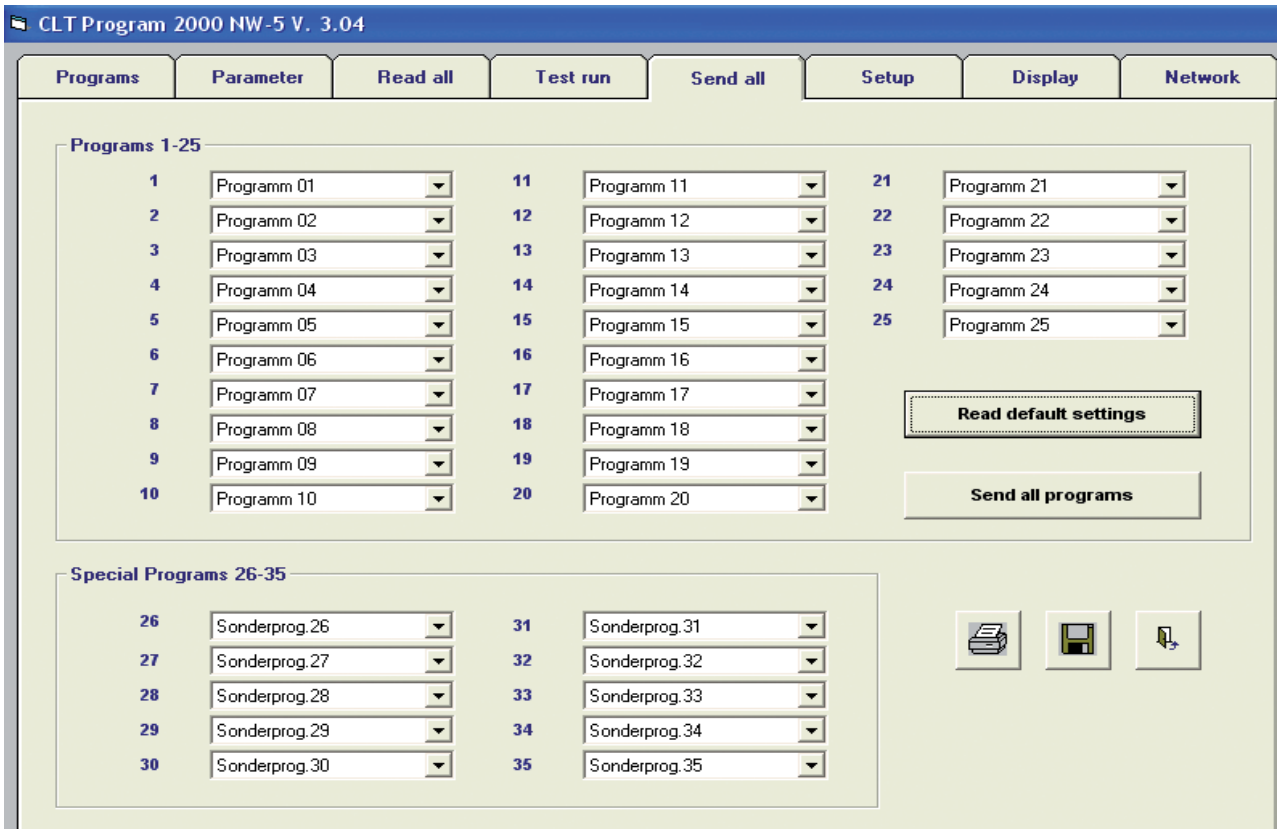
3.4.5. Sending all the programs



“Read default settings“
Standard programs will be read.
You can change the program settings by opening the program.

“Send all programs“
Send all programs to the control unit.

“Save“
If you click on the second symbol on the bottom (diskette)
the entered values will be saved.

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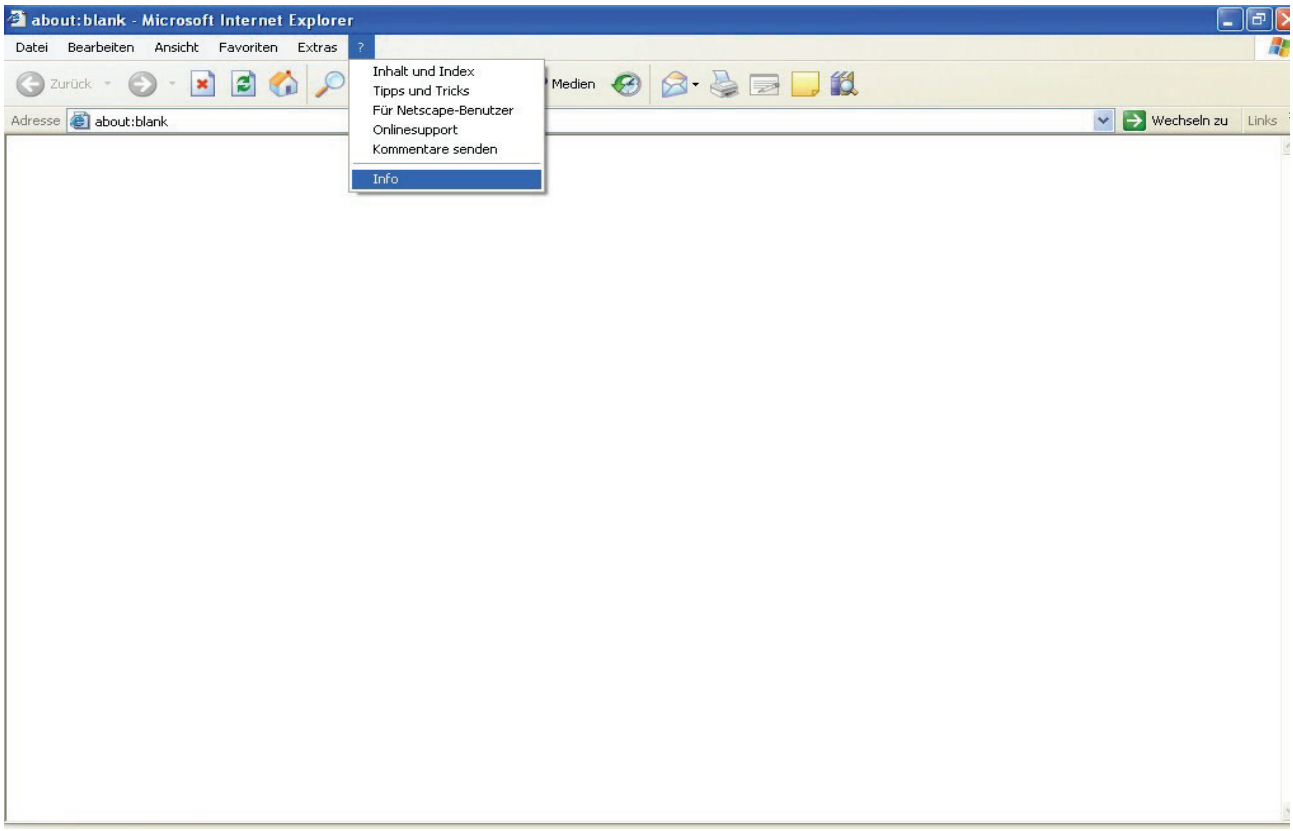
3.4.6. Setup



“COM Port“
Adjust the serial interface.

“Password management“
Change or give new passwords.

“Output working contents reached“
Invert the output signal
(look at port 1 and port 2)

“Language“
Select the national language.
After you have selected the language press “SAVE“ and restart the program.

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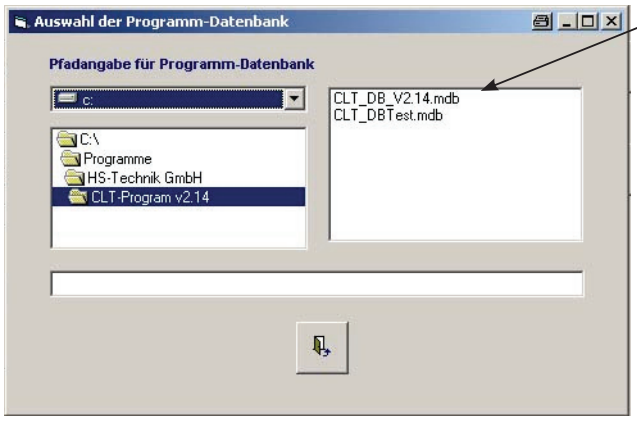
“Program Import / Export“
“Special Program Import / Export“
With this buttons you can safe the database at a freely choose place.

“Save“
If you click on the second symbol on the bottom (diskette) the entered values will be saved.

“Program database“
Choose your own database.

Generate your own database:



Please copy this database into your own folder.

“Send“
Preparation to “Send“:
On the backside of CLT-2000NW / CLT-2000NW-5 between port 1 and RS232 there is a small switch (lay lower). Move this switch upwards.
In the display on the frontside should appear this:

CLT-2000NW / CLT-2000NW-5
STOP ! ! !

Now the CLT-2000NW / CLT-2000NW-5 is recipient.

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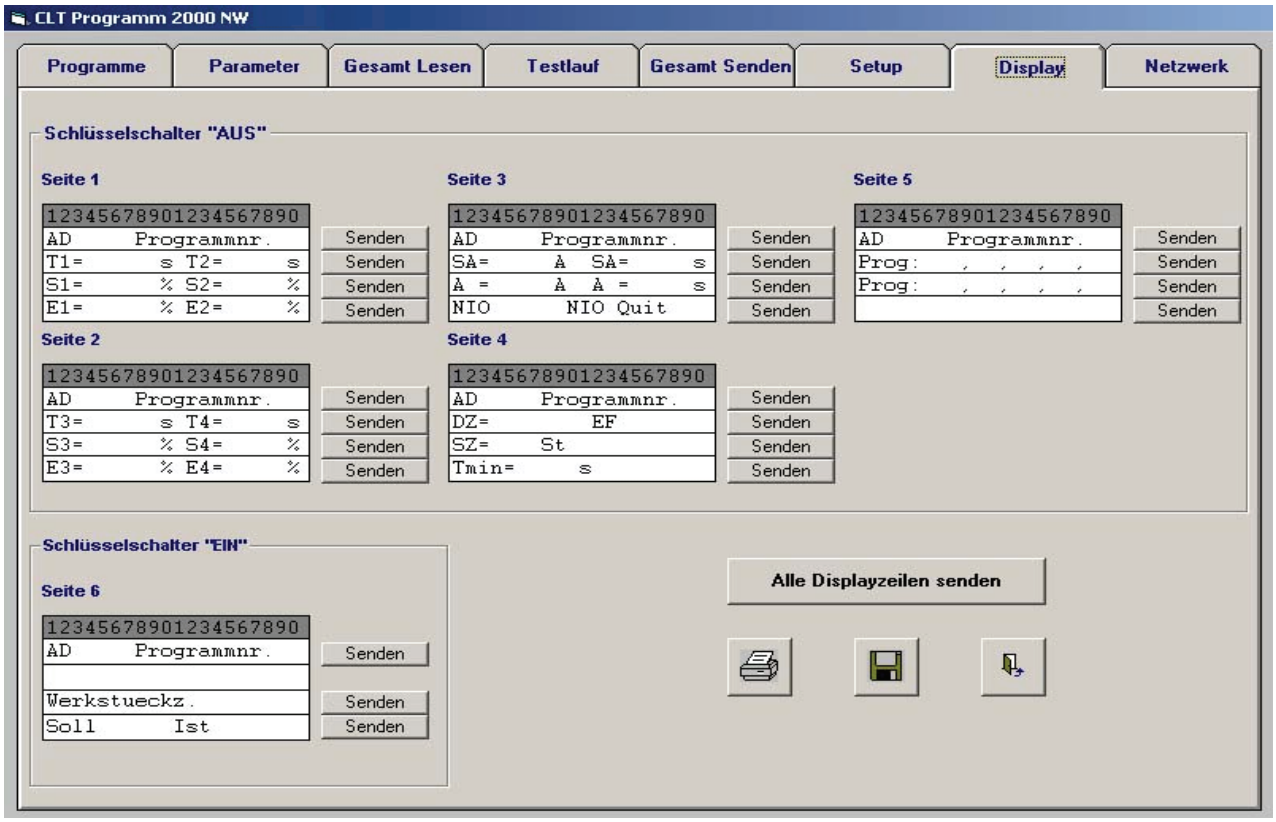
3.4.7. Display



"Send all lines to display"
You can edit, store and send the standard settings to the CLT-2000NW/NW5 .
They document the display values.
One should change them only at urgently necessary applications!

"Save"
If you click on the second symbol on the bottom (diskette)
the entered values will be saved.

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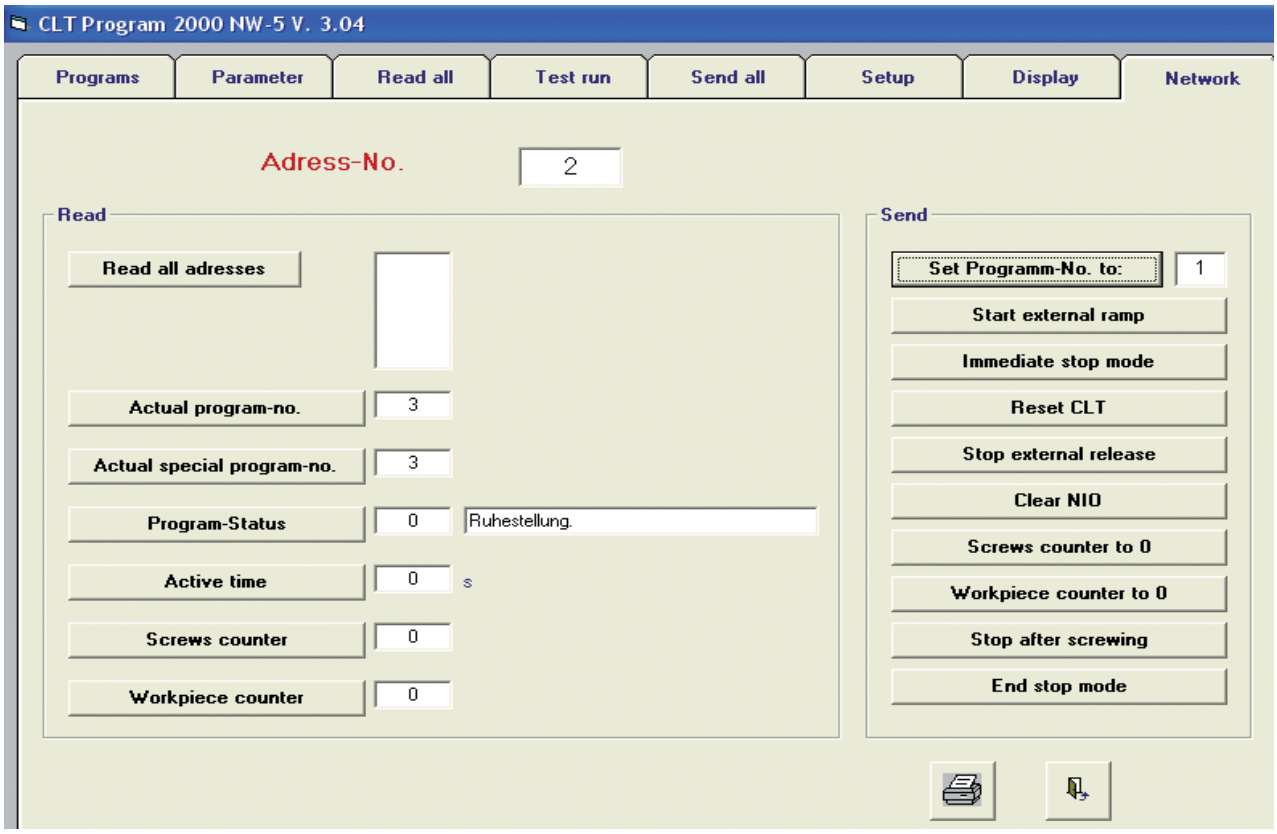
3.4.8. Network



All CLT-2000NW/NW5 should have an own network address.
In the same network there must not be assigned an address several times.
The address-no. is diplayed next to the abbreviation AD (e.g. AD 5).

Address →

Display

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Address number	The device number which is communicated via network. (an address must not be assigned several times)
Read all addresses	Establish all device addresses which are connected with the network.
Actual program-no.	Give back the current program of the choosen device.
Actual special program-no.	Look at "Actual program-no."
Program status	Shows the current condition of the device.
Set program-no. to	Change the program to the choose number.
Reset CLT	Reset the addressed control unit.
Stop external release	Stop the external release of the addressed control unit.
Clear NG	Delete the NG status of the addresses control unit.
Screw counter to 0	Put the screw counter of the control unit to 0.
Stop after tightening	Set the control unit to end stop mode. Can only be reseted by the „END STOP MODE" button.

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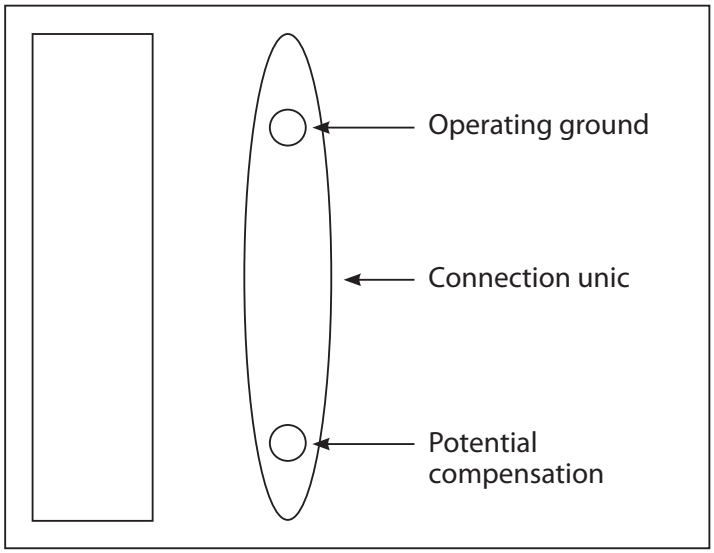
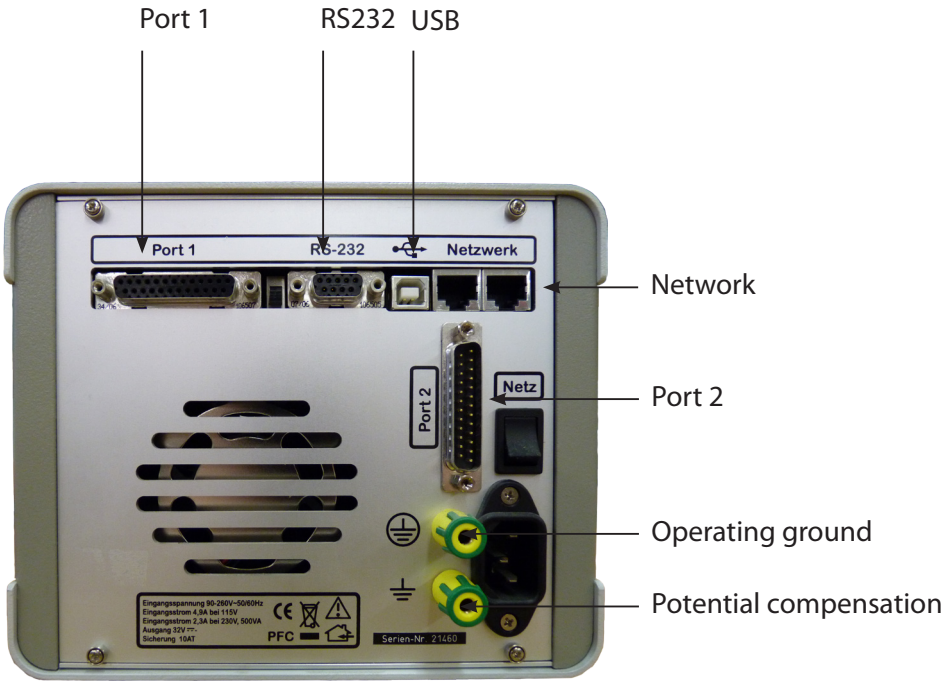
3.4.9. Potential compensation





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4. Pinning CLT-2000NW / CLT-2000NW-5
RS232

Pinning		Function
Pin2	TX	Send data
Pin3	RX	Receive data
Pin5	GND	Mass

5. Connection with the PC

Direct connection to the 9 pole RS232 plug (serial) of the PC.

6. Pinning CLT-2000NW / CLT-2000NW-5
Port 1 / 2

6.1. General

A voltage of 24V at port 1 and 2 is provided for the circuitry of the opto coupler and the external devices.

The maximum electric current is 0,5 A.

6.2. Data relays contact – potential free

Switching voltage	30V ≃
Switching current	100mA ≃

Data opto coupler – potential free

6.3. Output NPN

UCE Max	24V
ICE Max	50mA

With inductive charge, a protective diode should always be used.

7. Input - potential free

U max H	24V
I max	11mA
U max L	3V
U min H	18 V

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8. Pinning CLT-2000NW / CLT-2000NW-5
Port 1 (25-poles)

8.1. Output

Pinning		Function
Pin1	Collector	motor operates
Pin14	Emitter	potential free
Pin2	Kollektor	torque reached
Pin15	Emitter	potential free
Pin3	Kollektor	prepared
Pin16	Emitter	potential free
Pin4	Kollektor	NG (tightening)
Pin17	Emitter	potential free
Pin5	Relay	motor operates
Pin18		potential free
Pin6	Relay	torque reached
Pin19		potential free
Pin13 / 24 / 25		+24V
Pin20 / 21 / 23		GND

8.2. Input

Pinning		Function
Pin7		start
Pin8		stop
Pin9		backwards
Pin10		ramp start
Pin11		NG quit
Pin12		back stop
Pin22		opto coupler GND

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9. Pinning CLT-2000NW / CLT-2000NW-5
Port 2 (25-poles)

Pinning		Function
Pin1 / 2		+24V
Pin14 / 15		+24V
Pin5 / 6		GND
Pin18 / 19		GND

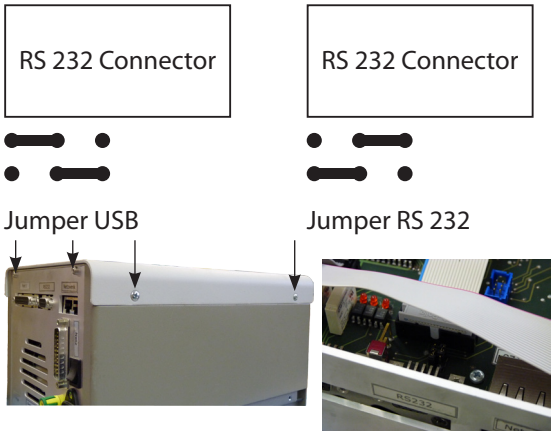
9.1. Output

Pinning		Function
Pin11	Collector	work content reached
Pin24	Emitter	work content reached
Pin12	Relay	work content reached
Pin25	Relay	work content reached
Pin7	Collector	reserve
Pin20	Emitter	reserve
Pin8	Collector	single tightening OK
Pin21	Emitter	single tightening OK
Pin10	Relay	single tightening OK
Pin23	Relay	single tightening OK

9.2. Input

Pinning		Function
Pin9		external release
Pin22		master reset
Pin13		opto coupler

9.3. Jumper adjustment



1) For choosing between USB and R232 remove the cover and the backside.
2) Put the jumper with a tweezers to the desired position.
3) After adjustment tighten the cover and the backside again.

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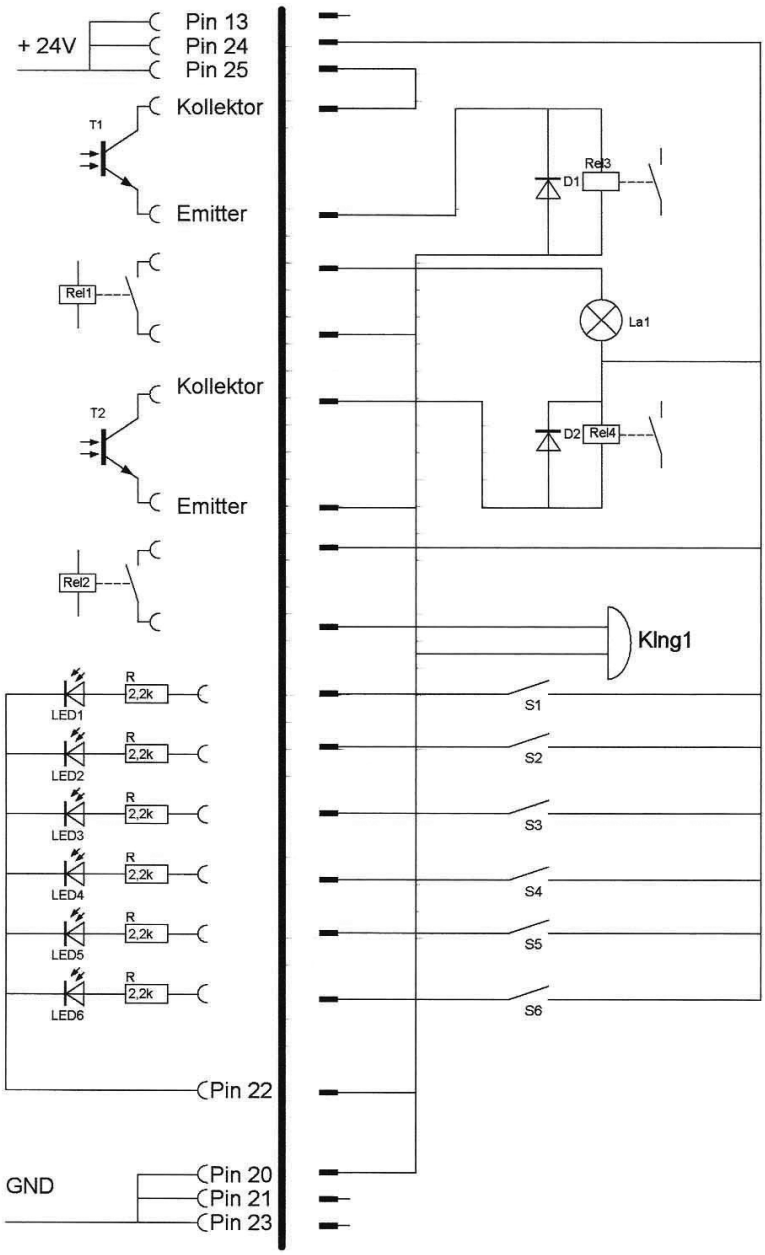
Switching example CLT2000 internal supply

connector CLT2000

connector CLT2000
internal supply



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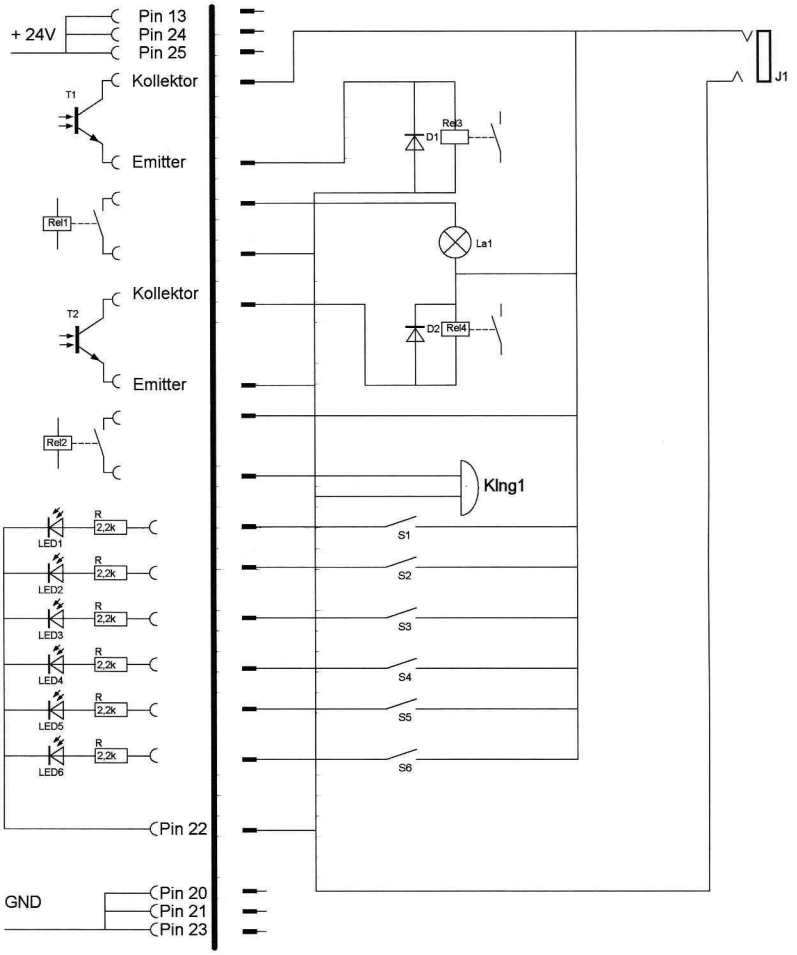
Switching example CLT2000 external supply

connector CLT2000

connector CLT2000
external supply



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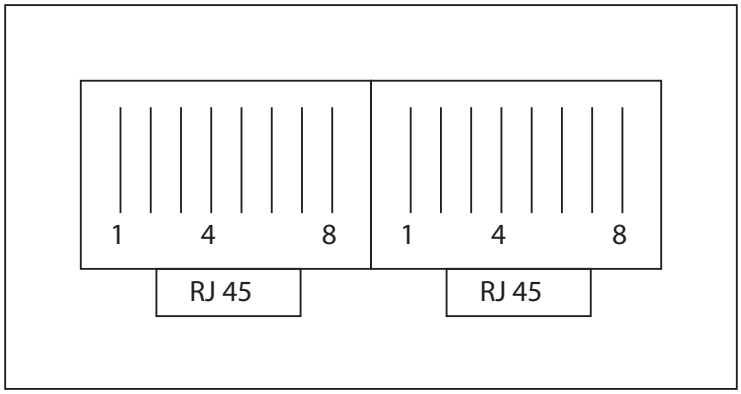
10. Network connection

Network bushes on the back of the device:

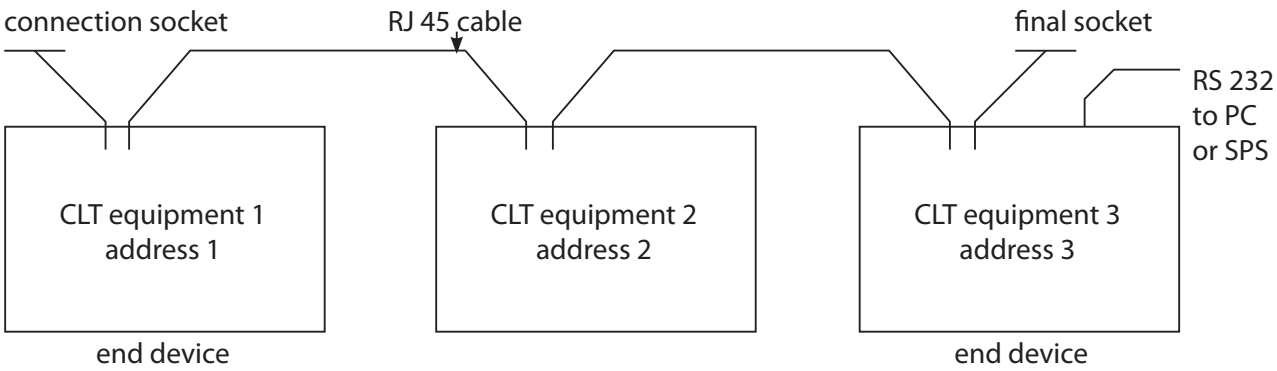


To connect several CLT-2000 units (up to 250 devices),
the following instructions has to be taken into consideration:

On the end devices at pin 1 and pin 4, a termination resistor (120 Ω)
has to be installed.

- Termination resistors
  Order-no.: CLT-2000NWA
  can be purchased via HS-Technik GmbH.

  The cables (red or blue) are available in
  the length 0,5m / 3m and 10m.



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Instruction list for the network control

Start	Address	Order	Sub order	Action		
Questions / order for the CLT2000NW/NW-5 with its own address						
@	X	L	P	programm parameter	only the own address	max. T-switch / max. time / work contact
@	X	L	K	list program by series	only the own address	
@	X	L	U	list T-switch type (hardware)	only the own address	
Questions / order for the CLT2000NW/NW-5 equipments on the CAN BUS						
@	X	L	S	list status	active / NG / external release / wate to start	
@	X	L	Z	aktive time	tightening time of the last screw	
@	X	L	P	program	read program number	
@	X	L	s	screw / work piece counter	screw counter and work piece counter	
@	X	L	a	program	read program number show display	
@	X	e		extern ramp		
@	X	R r		reset CLT		
@	X	N		screw counter = 0		
@	X	n		workpiece counter = 0		
@	X	E		finish external release		
@	X	S		start (NG time clear)		
@	X	P	number	place program number		
@	X	H		after tightening the control unit stops		
@	X	h		control unit fininsh the the stop mode		
Address had a value between 0 - 250 and became received and send too						
The particulars would be always send with address. The first information is "AD" (value) If the address is unequal zero – you can see it on the display.						
Contents of the status Bit 0 to Bit 3 as number of 0x00 to 0x0f				Bit 4 to Bit 7 as Bit information		
0x00	idle position			Bit 4	screwdriver is avtive	
0x01	electric current fault			Bit 5	screwdriver is o.k.	
0x02	electric current fault (stop)	(reset, because of hardware fault)		Bit 6	free	
				Bit 7	waiting mode (port B7 active) (I 0x80 from display)	
0x03	NG waiting time					
0x04	entrance stop active					
0x05	wait extern					
0x06	wait on clear					
X = binary value		number = binary value of the program number				

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11. Speed chart CLT-2000NW / CLT-2000NW-5

Speed chart with screwdriver

	CL-2000NL	CL-3000NLX	CL-4000NLX	CL-6500NLX	CL-7000NLX	CL-9000NLX	
	rpm	rpm	rpm	rpm	rpm	rpm	
10%	60	100	100	90	75	50	10%
15%	100	150	150	135	115	75	15%
20%	135	200	200	180	150	100	20%
25%	170	250	250	225	190	125	25%
30%	205	300	300	270	225	150	30%
35%	235	350	350	315	265	175	35%
40%	270	400	400	360	300	200	40%
45%	305	450	450	405	340	225	45%
50%	340	500	500	450	375	250	50%
55%	375	550	550	495	415	275	55%
60%	410	600	600	540	450	300	60%
65%	440	650	650	585	490	325	65%
70%	475	700	700	630	525	350	70%
75%	510	750	750	675	565	375	75%
80%	545	800	800	720	600	700	80%
85%	580	850	850	765	640	425	85%
90%	615	900	900	810	675	450	90%
95%	650	950	950	855	715	475	95%
100%	680	1000	1000	900	750	500	100%

	CLS-4000NLX	CLS-6500NLX	CLS-7000NLX	CL-6500PX	a-4500NLX	a-5000NLX	
	rpm	rpm	rpm	rpm	rpm	rpm	
10%	180	140	130	90	170	100	10%
15%	270	210	195	135	255	150	15%
20%	360	280	260	180	340	200	20%
25%	450	350	325	225	425	250	25%
30%	540	420	390	270	510	300	30%
35%	630	490	455	315	595	350	35%
40%	720	560	520	360	680	400	40%
45%	810	630	585	405	765	450	45%
50%	900	700	650	450	850	500	50%
55%	990	770	715	495	935	550	55%
60%	1080	840	780	540	1020	600	60%
65%	1170	910	745	585	1105	650	65%
70%	1260	980	910	630	1190	700	70%
75%	1350	1050	975	675	1275	750	75%
80%	1440	1120	1040	720	1360	800	80%
85%	1530	1190	1105	765	1445	850	85%
90%	1620	1260	1170	810	1530	900	90%
95%	1710	1330	1235	855	1615	950	95%
100%	1800	1400	1300	900	1700	1000	100%

All speed details have a tolerance of approx. ± 5%
After the programming the speeds should always be checked.

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Speed chart with screwdriver

	a-6500NLX	a-6500NLX -HT	a-7000NLX-K	HST-A-6500 -HS	HST-A-6500 -HT		
	rpm	rpm	rpm	rpm	rpm		
10%	170	75	120	170	75		10%
15%	225	115	180	225	115		15%
20%	340	150	240	340	150		20%
25%	425	190	300	425	190		25%
30%	510	225	360	510	225		30%
35%	595	265	420	595	265		35%
40%	680	300	480	680	300		40%
45%	765	340	540	765	340		45%
50%	850	375	600	850	375		50%
55%	935	415	660	935	415		55%
60%	1020	450	720	1020	450		60%
65%	1105	490	780	1105	490		65%
70%	1190	525	840	1190	525		70%
75%	1275	565	900	1275	565		75%
80%	1360	600	960	1360	600		80%
85%	1445	640	1020	1445	640		85%
90%	1530	675	1080	1530	675		90%
95%	1615	715	1140	1615	715		95%
100%	1700	750	1200	1700	750		100%

	HST-A-6500M	HST-A-6500S	HST-A-6500H	HST-CL-6500			
	rpm	rpm	rpm	rpm			
10%	50	60	70	90			10%
15%	75	100	105	135			15%
20%	100	135	140	180			20%
25%	125	170	175	225			25%
30%	150	205	210	270			30%
35%	175	235	245	315			35%
40%	200	270	280	360			40%
45%	225	305	315	405			45%
50%	250	340	350	450			50%
55%	275	375	385	495			55%
60%	300	410	420	540			60%
65%	325	440	455	585			65%
70%	350	475	490	630			70%
75%	375	510	525	675			75%
80%	400	545	560	720			80%
85%	425	580	595	765			85%
90%	450	615	630	810			90%
95%	475	650	665	885			95%
100%	500	680	700	900			100%

All speed details have a tolerance of approx. ± 5%
After the programming the speeds should always be checked.

Im Martelacker 12 – D-79588 Efringen-Kirchen – Telefon 0 76 28 - 91 11- 0 – Telefax 0 76 28 - 91 11-90
E-Mail: info@hs-technik.com – Internet: www.hs-technik.com

Declaration of Conformity

We declare under our sole responsibility, that this product is in compliance with
the relevant guidelines listed below in accordance with design and construction.
If the equipment should be modified without our consent, this explanation gets invalid.
The equipment listed below complies with currentls valid EGB / EMV norms.

Manufacturer:

Company: HS-Technik GmbH
Village: Im Martelacker 12
D-79588 Efringen-Kirchen
Phone: +49 (0)7628-9111-0
Fax: +49 (0)7628-9111-90
E-Mail: info@hs-technik.com

Equipment description:

Control unit for all CL-, SB- and α-, HST-A, HST-CL-screwdriver
with ramp and variable speed setting.

Type name:

CLT-2000NW / CLT-2000NW-5

Used EG guidelines:

89/336 EWG changed through 92/31 EWG and Art. 5, 93 / 68 EWG
89/392 EWG changed through 91/368 / EWG, 93 / 44 EWG and
Art. 6, 93 / 68 / EWG 73/ 23 EWG

HS-Technik GmbH
Im Martelacker 12, D-79588 Efringen-Kirchen

H.-Martin Hanke
Geschäftsführer

Datum: 25.05.2006